

P-NICOL-001/WO

CLAIMS

1. A system for anchoring an object in the ground comprising at least one anchoring stake (10) and means for employing said anchoring stake (10),

5 said stake (10) comprising a tube (14) with a drive-in spike (16) and a head (22), and at least two deformable anchoring claws (28) which are mounted with one end on a claw support that can move axially inside said tube (14) so that axial traction exerted on said claw support in the opposite direction to said drive-in direction causes said claws (28) to deploy out from said tube (14) through openings (30) in a wall (26) of the tube (14), said openings (30) having a geometry such that they cause said anchoring claws (28) to deploy at an angle along said tube (14) in the direction of traction; and

15 said means for employing said anchoring stake (10) comprise an actuating mechanism (33) involving a threaded rod (36) for exerting said axial traction on said claw support;

characterized in that

20 said claw support comprises a central support rod (24) which is coaxial with said tube (14), axially guided and prevented from rotating in said tube (14), said claws (28) being borne by the lower end of said central support rod (24) at said drive-in spike (16) end, and a coupling means equipping the upper end of said central support rod (24) at said tube head (22) end; and

25 said actuating mechanism (33) involving a threaded rod (36) comprises a nut (40) able to bear against said tube head (22) and a threaded rod (36)

on to which said nut (40) is screwed and the lower end of which comprises a coupling means able to collaborate with said coupling means at the upper end of said central support rod (24) so as to transmit said axial traction to this upper end when said nut (40) is turned in a first direction.

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2. The system as claimed in claim 1, characterized in that said means for employing said anchoring stake (10) further comprise a locking means (50) connected to said tube head (22) in such a way as to form a backstop for said nut (40) when the latter is turned in a second direction, the opposite to the first, in order thus to cause a translational movement of said threaded rod (36) toward the inside of said tube (14) and cause said claws (28) to retract back inside said tube (14).

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15 3. The system as claimed in claim 2, characterized in that said locking means (50) is an element that can be connected removably to said tube head (22).

15 4. The system as claimed in claim 3, characterized in that:

20 said nut (40) comprises a base (51);

said tube head (22) comprises a collar; and

25 said locking means (50) is a stirrup piece straddling said base (51) and said collar.

30 5. The system as claimed in any one of claims 1 to 4, characterized in that said coupling means form a coupling with a helical connection or a bayonet connection.

6. The system as claimed in any one of the preceding claims, characterized

in that said anchoring claws (28) are deformable rods.

7. The system as claimed in claim 6, characterized in that said tube (14) has a square cross section, said central support rod (24) has a round cross section, and said anchoring claws (28) are deformable rods of round cross section which are arranged in the four corners of said square-section tube (14) and which pass through openings arranged in the corners of said wall (26) of the tube (14).

10 8. The system as claimed in any one of the preceding claims, characterized in that said tube wall (26) comprises exit openings (30) for said claws (28) at different heights.

15 9. The system as claimed in claim 8, characterized in that said anchoring claws (28) are borne by a plate (45) fixed to the lower end of said central support rod (24) and have different lengths.

20 10. The system as claimed in any one of the preceding claims, characterized in that said lower end and said upper end of said central support rod (24) are axially guided in said tube (14).

25 11. The system as claimed in any one of the preceding claims, characterized by ground-firming means arranged around said tube (14) at said tube head (22) end.

12. The system as claimed in claim 11, characterized in that said ground-firming means comprise a body in the form of an inverted cone or of an inverted pyramid, provided with a central canal through which said tube (14) can pass.

30 13. The system as claimed in claim 12, characterized in that said body is formed of two half-bodies assembled along a central plane.

14. The system as claimed in claim 10, characterized in that said ground-firming means comprise at least two T-sections extending at an angle along the upper part of said tube (14) so as to form a "V".

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15. The system as claimed in any one of the preceding claims, characterized in that said means for employing said anchoring stake (10) further comprise a mandrel equipped with a shoulder able to bear against a collar surrounding said tube head (22) in order to drive said tube (14) into

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the ground, and equipped with a central rod with a flexible end able to bear against the upper end of said central support rod (24) in order to drive the latter into said tube (14) and thus retract said claws (28).

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16. Use of a system as claimed in any one of the preceding claims for anchoring a land-survey bench-mark in the ground.